



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P03-2004	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/013055	International filing date (day/month/year) 10 October 2003 (10.10.2003)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC B01D 53/44, C02F 1/78, B01F 5/00		
Applicant SUGIURA, Hikoroku		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.
3. This report contains indications relating to the following items:
  - I  Basis of the report
  - II  Priority
  - III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV  Lack of unity of invention
  - V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI  Certain documents cited
  - VII  Certain defects in the international application
  - VIII  Certain observations on the international application

Date of submission of the demand 06 April 2005 (06.04.2005)	Date of completion of this report 29 September 2005 (29.09.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/JP2003/013055

**I. Basis of the report**

1. With regard to the elements of the international application:\*

the international application as originally filed

the description:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the claims:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, as amended (together with any statement under Article 19)

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the drawings:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

the sequence listing part of the description:

pages \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

the language of publication of the international application (under Rule 48.3(b)).

the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/fig \_\_\_\_\_

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-12	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO

## 2. Citations and explanations

Document 1: JP 10-085723 A (Shinyuu Giken KK), 7 April  
1998

Document 2: JP 9-299776 A (Hikoroku SUGIURA), 25  
November 1997

Document 3: JP 63-51927 A (CT Takahashi KK), 5 March  
1988

The inventions set forth in claim 1 and 3 do not involve an inventive step in the light of documents 1 and 2 cited in the international search report. Document 1 (fig. 1 and 2; paragraphs 0022-0031) discloses a method for clarifying a fluid wherein a mixer is provided with a mixer main body having a cylindrical shape with a diameter greater than that of the flow passage; a hollow disc part on the end surface of the inlet side positioned on the end part of the cylinder part of the mixer main body with the hollow part forming the inlet port; and a hollow disc part on the end surface of the outlet side with the hollow part forming the outlet port; wherein, inside the mixer main body, a shock cylinder with a diameter greater than that of the inlet port, yet smaller than the inner diameter of the cylinder part of the mixer main body is positioned with its opening side facing the inlet port upstream of the static mixer that is fixed and contained

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concentrically, so as to mix and react the waste water with ozone. Moreover, document 2 discloses a mixer similar in type to the aforementioned static mixer, wherein a plurality of recesses are provided on the inner surface of the mixer and the surface of the shock cylinder. Both document 1 and document 2 pertain to devices for mixing a fluid and therefore, it would be easy for a person skilled in the art to apply the mixer disclosed in document 2 to the invention in document 1.

The inventions set forth in claims 2, 5 and 12 do not involve an inventive step in the light of documents 1 and 2.

Employing a groove shape as the shape of the recess is common practice.

The invention set forth in claim 4 does not involve an inventive step in the light of documents 1 and 2 and newly cited document 3. As disclosed in fig. 1 of document 3, a static mixer having an enlarged diameter part and wherein a spiral shaped protrusion is provided on the inner surface of the mixer main body is known and it would be easy for a person skilled in the art to apply this known structure to the invention in document 1.

The invention set forth in claim 6 does not involve an inventive step in the light of documents 1 and 2. Document 2 (fig. 8) discloses a mixer wherein the end of the flow passage on the downstream side projects into the mixer.

The inventions set forth in claims 7, 8, 10 and 11 do not involve an inventive step in the light of document 2 and known techniques. Employing a groove shape as the shape of the recess is common practice.